

Appl. No. 10/754,251
Response dated January 6, 2006
To Office Action dated November 8, 2005

REMARKS/ARGUMENTS

Applicant appreciates the indication that his declaration under 37 CFR 1.131 has overcome the McGeer (6,264,140) reference.

Election/Restrictions

Applicant has canceled the non-elected claims, together with certain other claims, without prejudice to his right to file divisional applications directed to the subject matter thereof.

The other matters set out in this section are believed to be resolved. The phrase "linear or curvilinear fixture" was taken from the McGeer patent when applicant was trying to provoke an interference with this patent. In view of the current prosecution of the claims, adoption of that language is no longer believed necessary or desirable. The term "linear fixture" has been replaced with "line" to emphasize that the reference is to the long, narrow structure, and not to a geometric abstraction (a "straight line").

Claim rejections - 35 USC § 102 and 35 USC § 103

All of the claims have been rejected over Teledyne Ryan Aeronautical, "Mini RPV Recovery System Conceptual Study" (Teledyne), either alone or in view of Tucker, U.S. Patent 1,748.633 or in view of skill in the art.

The Examiner references Figures 43, 44, and 79 of Teledyne. It is believed that the final reference is to Figure 75. Figures 73(a) and 74(a) and Figures 84 and 85,

Appl. No. 10/754,251
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(2) suppressing high transient loads that would result from the rotational inertia of the rotating arm system." (pp. 231-4)

Applicant is not able determine with certainty whether the Teledyne reference qualifies as a "printed publication" under 35 U.S.C. 102(b). He also does not concede that disclosure of a concept that is taught to be too unreliable for serious consideration constitutes anticipation of an invention that has proven to be very reliable. Nonetheless, he has amended the claims (without prejudice to his right to file continuation or divisional applications directed to the original claims) to define an invention which is neither shown nor suggested by Teledyne.

The Tucker patent discloses a carousel arrangement in which a hook above the center line of an airplane captures a hoop on the carousel. The hook is disclosed to incorporate a latch 54 (Figure 7). This reference is cited solely for the inclusion of the latch. It is noted that Teledyne's description of both its rotary carousel concept (page 134 et seq.) and its tethered aerial concepts II-8A and II-8C refers to a "hook/latch device" mounted on the wing tip of an aircraft, although no latch appears to be shown in Teledyne's drawings.

It is also noted that two of the references cited, Walander, U.S. Patent 3,454,244 and Doolittle, U.S. Patent 3,827,660, disclose net capture systems in which the captured aircraft may have a tail hook. The systems are similar to each other. In both these systems, vertical lines are suspended between upper and lower horizontal lines.

Appl. No. 10/754,251
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In both systems, however, it appears that the aircraft can be captured by its tail hook only when the net is lowered, so that the aircraft wheels run over the lowered net before the tail hook captures the horizontal line (the lower line when the net is erected). This is set out explicitly in Doolittle, where such a capture is shown in Figure 15 and described at col. 2, lines 38-40 and at col. 6, lines 27-46. Walander also suggests that this is the mode of operation of his arresting device with a tail hook: "Since the net may be constructed with only one lower line or cable it can also be used as an arrester wire when an aircraft uses its arrester hook." (Col. 2, lines 6-8; emphasis added) The teaching that the lower cable of his net may be used as an arrester wire when the net is not erected is further strengthened at column 1, lines 65-69: "The present invention relates to an arrester gear for aircraft, comprising nets which include substantially horizontal upper and lower lines or cables arranged when in raised position, in vertical spaced relationship and joined together by vertical cables or lines." (Emphasis added)

Flying the aircraft of the Teledyne concept II-3A, II-8A, or II-8C into the erected net of Doolittle or Walander is not suggested by any of the art. Teledyne suggests that any mechanism for capturing the aircraft of these concepts would lack reliability. Teledyne thus provides no incentive to pursue such an aircraft, and it would not be obvious to build this aircraft and combine it with some other capture system.

Appl. No. 10/754,251
Response dated January 6, 2006
To Office Action dated November 8, 2005

together with the discussion associated with all these Figures, are also believed to be relevant.

As indicated by its title, Teledyne is a conceptual study, which appears to be designed to investigate all conceivable ways to recover a remotely-piloted vehicle (RPV) and determine which might offer enough prospects to justify further evaluation. Among the numerous ways investigated were II-3A, a "carousel" system in which a hoop is to be engaged by a wingtip hook/latch on the RPV and two "tethered aerial" systems, II-8A and II-8C, in which a line held up by a balloon (aerostat) or by a rotary wing vehicle is captured by a wingtip hook/latch on the RPV.

Both tethered aerial systems were among the "concepts set aside in initial evaluation" (Table 7, page 205). The remarks indicate, among the reasons for setting the concepts aside in the initial evaluation: for the aerostat, "Reliability (capture and retrieval of RPV) estimated low" (p. 208); and for the rotary wing, "Reliability factor estimated low" (p. 209). Thus, the only two concepts considered by Teledyne involving recovery of an RPV with a wing-mounted hook and a line engaged by the hook were rejected as too unreliable to warrant further study.

The other concept considered by Teledyne involving a wingtip hook/latch, the II-3A carousel system, was taken from the Aviation Week reference. This concept was set aside after further study because of "the high technical risks involved in: (1) achieving proper engagement of the RPV (Ref. subsection 7.8 [pp. 134-44]), and

Appl. No. 10/754,251
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Claims 1, 3, 8-13, 15-19, 21, 34-37, 39, 41, 42, 44, 46, 49, and 51-53 have been rejected under 35 U.S.C. 102(b) as anticipated by Teledyne. Claims 4, 22, 38, 45, and 50 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Teledyne in view of Tucker. Claims 5-7 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Teledyne in view of ordinary skill in the art. These rejections are respectfully traversed.

Claim 1 now calls for "an arrestment line held up at an upper end by structure supported by a base, a lower end of the arrestment line also being connected to the base." Neither of the Teledyne concepts, II-8A or II-8C, discloses or suggests such an arrangement. Nothing in the art of record, taken alone or in combination is believed to show or make obvious such an arrangement.

Claims 4-9, 12, 13, 51-53, and 58-63 are dependent on claim 1. These claims should be allowable with claim 1. They also define features which, in the claimed combination, are believed to be new and unobvious.

Claim 18 now calls for, among other things, a "flying object having a spanwise lifting surface with a capture device," and an apparatus adapted for capturing the flying object, the apparatus comprising "an arrestment line positioned to engage the capture device of the flying object to releasably secure the flying object to the apparatus," and "a support structure coupled to the arrestment line at two spaced-apart positions and positioned to support a portion of the arrestment line between said positions in the flight

Appl. No. 10/754,251
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path." Again, nothing in Teledyne, or any of the other art of record taken alone or together, shows or suggests such a combination.

Claims 19, 22, and 64-65 are dependent on claim 18 and are believed to be allowable with it. These claims also define further features which, in the claimed combination, are believed to be new and unobvious.

Claim 34 now calls for, among other things, a line suspended across the flight path of a flying object, "support structure, supported by a base, suspending the line, a lower end of the line being restrained to prevent the line from blowing freely in the wind," and "a device attached to the flying object adapted for intercepting the sliding of the line along a leading edge of a wing of the flying object and holding the flying object to the line." Nothing in Teledyne, or any of the other art taken separately or together, suggests this combination.

Claims 35, 37-39, and 66-67 are dependent on claim 34 and are believed to be allowable with it. These claims also define further features which, in the claimed combination, are believed to be new and unobvious.

Claim 41 now calls for, among other things, a suspension adapted for suspending a line across the flight path of a flying object, "an energy absorbing device connected to a lower end of the line," and a hook on a wing of the flying object adapted for intercepting the line and releasably securing the flying object to the line. Nothing in

Appl. No. 10/754,251
Response dated January 6, 2006
To Office Action dated November 8, 2005

Teledyne or any of the other art of record, taken singly or together suggests this combination.

Claims 42, 45, 46, and 68 are dependent on claim 41 and are believed to be allowable with it. These claims also define further features which, in the claimed combination, are believed to be new and unobvious.

New claim 54 is directed to an aerial recovery system for capturing a swept wing aircraft on a water craft, the system including an arrestment line and an aircraft having a hook and structure, comprising a wing of the aircraft, suitable for deflecting the line laterally into engagement with the hook, the wing being swept at least fifteen degrees. It would not be obvious to modify Teledyne's low-reliability conceptual systems to place them on a water craft, where the risks of not successfully retrieving an aircraft are magnified. Likewise, nothing in McGeer, alone or in combination with Teledyne, suggests that use of a swept wing aircraft would make any difference in the reliability of the system. It is believed that this claim defines an invention neither shown nor suggested by any of the prior art taken separately or combined.

Claims 55-57 are dependent on claim 54 and are believed to be allowable with it. These claims also define further features which, in the claimed combination, are believed to be new and unobvious.

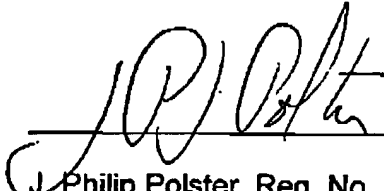
Appl. No. 10/754,251
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Conclusion

It is believed that the claims are patentable over the art of record. It is therefore requested that the case be passed to issue. Should the examiner have any questions or suggestions, he is urged to call applicant's undersigned attorney at 314-238-2426.

Respectfully submitted,

Date: January 6, 2006



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